Duke Energy
WP994 / 1000 East Main Street
Plainfield, IN 46168

Overview of State and Federal Laws Governing Construction of the Repurposed Secondary Pond at Cayuga Generating Station

I. While the repurposed Cayuga Secondary Pond is not a CCR unit subject to Federal construction standards, Duke Energy is nevertheless lining the Cayuga Secondary Pond.

The re-purposed Secondary Pond at Duke Energy's Cayuga Generating Station is not subject to the CCR rule's liner design requirements because it is not a CCR surface impoundment under the rule. In its draft CCR rule, EPA proposed to define a CCR surface impoundment to mean

> a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials) which is designed to hold an accumulation of CCR containing free liquids. . . . *CCR surface impoundments are used to receive CCR that have been sluiced (flushed or mixed with water to facilitate movement). . . .*"

75 Fed. Reg. 35128, 35240 (proposed June 21, 2010) (to be codified at 40 C.F.R. § 257.40) (emphasis added). However, after reviewing extensive comments "argu[ing] that the definition was overly broad and would inappropriately capture surface impoundments that are not designed to hold an accumulation of CCR," 80 Fed. Reg. 21302, 21357 (Apr. 17, 2015), EPA revised the definition of "CCR surface impoundment" in the final rule.

Under EPA's revised definition, in order to be a "CCR surface impoundment" the basin must meet three criteria: The unit must be (1) "a natural topographic depression, manmade excavation or diked area"; (2) "designed to hold an accumulation of CCR and liquid;" and (3) "treat[], store[] or dispose[] of CCR." 40 C.F.R. § 257.53. EPA explains in the preamble to the final rule that it made this regulatory change to the definition in recognition of the fact that ponds, such as process water or cooling water ponds, "receiv[ing] only de minimis amounts of CCR" do not pose the level of risk modeled in EPA's risk assessment and which the rule seeks to address. 80 Fed. Reg. at 21357. EPA further explains that

> CCR surface impoundments do not include units generally referred to as cooling water ponds, *process water ponds*, wastewater treatment ponds, *storm water holding ponds*, or aeration ponds. These units are not designed to hold an accumulation of CCR, and in fact, do not generally contain significant amounts of CCR. Treatment, storage, or disposal of accumulated CCR also does not occur in these units.

Id. (emphasis added).

The repurposed Secondary Pond at Cayuga is a process water pond, which will also receive contact stormwater and landfill leachate. By way of the CCR rule, EPA codified in 40 C.F.R. § 261.4(b)(4) a list of low volume wastes, which are also referred to as uniquely associated wastes, that when co-disposed with CCR are not subject to hazardous waste regulations. This list includes process water treatment and demineralizer regeneration wastes, coal pile run-off, boiler cleaning solutions, boiler blowdown, cooling tower blowdown, air heater and precipitator washes, effluents from floor and yard drains and sumps, and wastewater treatment sludges. *Id.* at 21462. In an FAQ guidance document released by EPA approximately four months after the CCR rule was promulgated, EPA explained that uniquely associated wastes are not considered CCR:

> **Are small ponds containing CCR from uniquely associated wastes such as boiler washes, air preheater washes, or precipitator washes covered by the rule? If they are uniquely associated wastes, does that mean they cannot be CCR?**
>
> RESPONSE: Uniquely associated wastes, as defined in the revised 40 CFR 261.4 (see pages 21500 and 21501 of the April 17, 2015 Federal Register Notice) are not CCR but are solid wastes covered by the Bevill exemption for fossil fuel combustion wastes at 40 CFR 261.4(b)(4).

EPA, Frequent Questions on the Implementation of the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities Final Rule, http://www.epa.gov/sites/production/files/2015-08/documents/frequent_questions_on_the_implementation_of_the_ccr_final_rule_aug_11_2015_v5_.pdf (Aug. 11, 2015), at 3.

In this same FAQ guidance document, EPA confirms that coal ash leachate ponds are not subject to the CCR rule by explaining that "CCR surface impoundments are defined as impoundments that are designed to hold an accumulation of CCR and liquids, and that treat, store, or dispose of CCR. A CCR leachate pond, or impoundment; i.e., an

impoundment that only holds leachate from CCR landfills and not CCR, does not meet this definition." *Id.* at 8-9.

For the foregoing reasons, the Cayuga Secondary Pond is not a CCR surface impoundment because it is used to receive and manage process water—a uniquely associated waste—stormwater, and landfill leachate, all of which contain only *de minimis* amounts of CCR. Because the basin will incidentally and indirectly receive only trace amounts of CCR and lack the characteristics of those surface impoundments EPA determined are the source of the risks the CCR rule was designed to address (*i.e.*, units that contain a large amount of CCR managed with water, under a hydraulic head that promotes the rapid leaching of contaminants), 80 Fed. Reg. at 21357, it would be wholly inappropriate to require the liner system being suggested by IDEM.

In any event, despite not being a CCR surface impoundment, Duke Energy is installing a liner system, which is precisely the same as that installed at the Gibson South Settling Basin; to wit (top to bottom):

- 15 inches of riprap (on side slopes only) over;
- 12 inches of No. 11 gravel over;
- 16 ounce/square yard geotextile over;
- 60 mil textured HDPE geomembrane over;
- Geosynthetic clay liner (GCL) over;
- Compacted soil fill (engineered fill).

EPA's studies have shown that

> a GM/GCL liner can be constructed to achieve hydraulic efficiencies in the range of 99 to 99.9% which meets or exceeds the hydraulic performance of a GM/compacted clay liner (CCL) design. In addition, these high efficiencies demonstrate that the GCL component of a GM/GCL composite liner is at least as effective in impeding leakage through holes in the GM component of the composite liner system as a CCL with a hydraulic conductivity no more than 1×10^{-7} cm/sec.

80 Fed. Reg. at 21369. Accordingly, the liner system being proposed by IDEM, which includes (i) 1 foot of 10^{-7} cm/sec of compacted clay liner, (ii) leak detection, (iii) 2 feet of 10^{-7} cm/sec of compacted clay liner geomembrane, and (iv) 2 feet of 10^{-7} cm/sec of compacted clay liner geomembrane for the side slopes liner system, is neither necessary nor appropriate.

II. The CCR rule, as incorporated into Indiana law, requires a certification from a qualified professional engineer that the clean closure requirements have been satisfied, but no agency certification is required.

One of the central features of the CCR rule is the use of qualified professional engineers to make various determinations regarding compliance with the rule. For example, under the CCR rule, the "owner or operator of [a] CCR unit must obtain a written certification from a qualified professional engineer" that the closure plan for a unit satisfies the requirements of the CCR rule. 40 C.F.R. § 257.102(b)(4). If the owner or operator elects to use the closure-by-removal method, the qualified professional engineer must certify that the closure-by-removal requirements will be satisfied. 40 C.F.R. § 257.102(c). Once closure is complete, a qualified professional engineer is again required to certify that CCR rule requirements have been satisfied. 40 C.F.R. § 257.102(f)(3).

The use of qualified professional engineers to provide an assessment of compliance is an important element of the CCR rule because when it was first adopted EPA did not have the authority under Subtitle D of RCRA to create a permitting program. *See, e.g.*, 80 Fed. Reg. 21,302, 21,310 (April 17, 2015) ("EPA has no role in the planning and direct implementation of the minimum national criteria or solid waste programs under RCRA subtitle D, and has no authority to enforce the criteria."). Moreover, EPA explained that "[s]tates are not required to incorporate or implement [the CCR rule] requirements under any state permitting program or other state law requirement, and EPA is not authorized to impose such requirements, directly or indirectly on the states." *Id.* at 21,311. Instead, "States and citizens may enforce . . . the federal criteria using the authority under RCRA section 7002." *Id.*

This all changed as a result of the Water Infrastructure Improvements for the Nation Act of 2016 ("WIIN Act"), which amended Subtitle D of RCRA (42 U.S.C. § 6945(d)) and allows for EPA to review and approve of State CCR permit programs. According to a recent letter from EPA Administrator Scott Pruitt to Nevada Governor Brian Sandoval, EPA is planning to release a guidance document describing the process the States must go through to have their CCR permit program approved. Letter from Scott Pruitt, EPA Administrator to Governor Sandoval (April 28, 2017) available at https://www.epa.gov/sites/production/files/2017-05/documents/sandoval-april282017.pdf. That guidance has not yet been released, and it is not clear how EPA will process and approve State applications. Nevertheless, Indiana's recently amended Solid Waste Management Plan ("SWMP") outlines several of the steps that IDEM expects will take place as part of EPA's approval of a planned CCR permit program in

Indiana. *See, e.g.,* Indiana CCR Part 256 Plan, Section 3. Developing an Indiana CCR Permit Program (Feb. 23, 2017).

While Indiana does not yet have a permitting program for CCR units, there is a new state regulatory requirement for owners and operators of CCR surface impoundments to comply with the federal CCR rule. *See* 329 IAC 10-9-1(b)-(c). This creates another enforcement mechanism that IDEM can use if it believes an owner or operator of a CCR surface impoundment is out of compliance, and it requires the IDEM Commissioner's approval for the "final disposal" of solid waste in a CCR surface impoundment based on the applicable requirements of the federal CCR rule. But it does not create a "permit program" or otherwise alter the existing paradigm, which relies on qualified professional engineers to make determinations with respect to closure.

In IDEM's adoption of the amendments to 329 IAC 10-9-1, the agency was very clear and stated multiple times in various rulemaking documents that the revisions were intended to bring "Indiana law into conformity with federal requirements" and that the rule was no more stringent than Federal law. In fact, as part of the state rulemaking process, IDEM was required to identify all "restrictions and requirements not imposed under federal law," to which IDEM responded:

> No element of the draft rule imposes either a restriction or a requirement on persons to whom the draft rule applies that is not imposed under federal law. This draft rule imposes no restrictions or requirements because it is a direct adoption of federal requirements that are applicable to Indiana and contains no amendments that have a substantive effect on the scope or application of the federal rule.

Findings and Determination of the Commissioner Pursuant to IC 13-14-9-8 and Draft Rule, LSA Document #16-217, 20160601-IR-329160217FDA (June 1, 2016) available at http://www.in.gov/legislative/iac/20160601-IR-329160217FDA.xml.pdf.

Further, in its presentation to the Environmental Rules Board, IDEM also noted that the primary reason for adopting the state CCR rule was to "reconcile the dual layer of regulation" over CCR surface impoundments and bring state and federal law into agreement. Coal Combustion Residual Emergency Rule, Rule Information Sheet (Feb. 10, 2016) available at http://www.in.gov/idem/files/rules_erb_20160210_ccr_info_sheet.pdf.

The role of qualified professional engineers is integral to the CCR rule, and nothing in IDEM's incorporation of the federal rule into state law alters that role or requires

agency certification. Accordingly, as required by 40 C.F.R. § 257.102(f)(3), Duke Energy will obtain a certification from a qualified professional engineer verifying that closure of its CCR units has been completed in accordance with the closure plan and the requirements of 40 C.F.R. § 257.102, including, as appropriate, paragraph (c) thereof. To the extent Indiana decides to adopt a WIIN Act permit program in the future, Duke Energy will work with IDEM and the other Indiana utilities to develop such a program.

III. While Duke Energy has elected to install a liner in the repurposed Secondary Pond, there is no state or federal law mandating such a liner or otherwise imposing construction standards on the Pond.

Both the operation and construction of the Secondary Pond are exempt from Indiana law. First, for non-CCR surface impoundments, Indiana law provides that "[t]he operation of surface impoundments" is exempt IDEM's regulations for solid waste land disposal facilities (329 IAC 10-3-1(9)) and from Indiana's rules for solid waste processing facilities (329 IAC 11-3-1(9)). Second, Indiana law exempts water pollution control facilities subject to an NPDES permit, which would include the Secondary Pond, from state construction and permitting requirements. Ind. Code § 13-14-8-11.6(a). And in any event, those rules do not specify any liner or leak detection requirements for surface impoundments like the Secondary Pond. *See generally* 327 IAC 3.

The CCR rule's closure-by-removal of CCR performance standard also does not establish any liner requirements or construction standards for non-CCR process water ponds. Pursuant to Section 257.102(c) of the rule, which sets forth the standard,

> [a]n owner or operator may elect to close a CCR unit by removing and decontaminating all areas affected by releases from the CCR unit. CCR removal and decontamination of the CCR unit are complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standard [for Appendix IV constituents].

It appears that IDEM may interpret this language to stand for the proposition that a CCR unit is not closed under Section 257.102(c) until the CCR has been removed and the Section 257.95(h) groundwater protection standard has been met. The implication of this interpretation is that until the groundwater protection standard has been met, the unit has not been "closed," and, therefore, the repurposed Cayuga Secondary Pond must be constructed with a compacted clay liner system. However, there is no support in the CCR rule for such a requirement. First, because, as analyzed above, the

repurposed pond is a not a CCR surface impoundment, the rule's provisions applicable to retrofitted existing CCR surface impoundments are not applicable.

Second, nothing in the CCR rule requires owners and operators to install liners on new *non*-CCR surface impoundments or to wait until the groundwater protection standard established pursuant to 40 C.F.R. § 257.95(h) for constituents listed in Appendix IV to Part 257 have been met before building a new unit in the footprint of a CCR surface impoundment that has been closed by removal of CCR.

Although Section 257.53 of the rule defines an "overfill" as "a new CCR landfill constructed over a closed CCR surface impoundment" and does not specifically address impoundments constructed over closed basins, EPA's regulatory treatment of these units is instructive. Pursuant to Section 257.70(a)(2) (design criteria for new CCR landfills and any lateral expansion of a CCR landfill), "[p]rior to construction of an overfill the underlying surface impoundment must meet the requirements of § 257.102(d)." Once the underlying impoundment has been dewatered, capped, and closed pursuant the closure performance standard, construction of the overfill may commence.

It is implausible that EPA would intend to allow for the construction of an overfill directly after a unit has been closed under Section 257.102(d), but force the owner or operator that has closed a unit pursuant to Section 257.102(c) to wait potentially decades until the groundwater protection standard has been met before constructing a new overlying unit. Such an interpretation would have the perverse effect of promoting closure by cap-in-place over closure-by-removal—a result EPA likely did not intend. Rather, the agency sought to incentivize closure-by-removal by exempting the unit from the rule's groundwater monitoring and other post-closure care requirements and allowing removal of the deed notation required under 40 C.F.R. § 257.102(i)(4) once "clean closure" has been achieved. An interpretation that owners and operators must install liner systems on impoundments closed by removal of CCR pursuant to Section 257.102(c) until the groundwater protection standard has been met would create a contrary incentive and be inconsistent with EPA's goals. Indeed, despite concluding that "both methods of closure (*i.e.*, clean closure and closure with waste in place) can be equally protective, provided they are conducted properly" and acknowledging that "most facilities will likely not clean close their CCR units given the expense and difficulty of such an operation," EPA explicitly identified closure-by-removal as an acceptable means of closing a CCR unit in recognition of the fact that "clean closure is generally preferable from the standpoint of land re-use and redevelopment." 80 Fed. Reg. at 21412. Given these land re-use considerations, EPA never intended for owners

and operators to have to wait until the groundwater protection standard has been met before repurposing the land.

Consistent with the closure-by-removal method that IDEM has approved, Duke Energy intends to close the Cayuga Secondary Settling Basin as follows:

- The dewatered sediment currently present in the basin will be excavated and disposed of in the Station's landfill or placed as structural fill within the limits of the final cover subgrade at one of the in-place closure areas.

- Following removal of CCR materials, the basin will be visually inspected by a third-party engineer or geologist to verify that CCR materials have been removed from the portions of the pond that have been closed by removal. Following this visual inspection, and any subsequent removal required by the inspection, the surface of the excavation will be surveyed on 100-foot centers.

- A minimum of 1 foot of material will be removed from the entire footprint of the basin and the material transported for either: (a) disposal in the landfill; or (b) placement in one of the in-place closure areas as structural fill. Following removal of the 1 foot of soil, the excavation will be surveyed, again using the same grid system to confirm the removal of a minimum of one 1 foot of material. The surveyor will be instructed to look for any evidence that the 1 foot undercut of soil was not uniformly performed across the base of the excavation.

- Following the completion of the closure-by-removal activities, a closure certification report will be prepared and submitted to IDEM. The closure certification report will include a summary of the visual inspection findings, photographs of the area following removal of the CCR materials and a minimum of 1 foot of soil, and a summary of the survey data obtained to document the removal of these materials. The report will be prepared and certified by a licensed professional engineer.

If, despite these robust closure-by-removal procedures, any contaminated soils are left below the closure-by-removal excavation and cause an exceedance of the groundwater protection standard, Duke Energy will take steps to address this contamination pursuant to its obligation to conduct a minimum of 30 years of post-closure care on those portions of the basin closed by leaving CCR in place. Specifically, paragraphs (a) through (c) of 40 C.F.R. § 257.104 require owners and operators of CCR surface impoundments closed pursuant to Section 257.102(d) to, among other things, maintain the groundwater monitoring system, monitor the groundwater, and take corrective

action, as necessary, pursuant to 40 C.F.R. §§ 257.90-.98. Accordingly, robust groundwater monitoring is an integral component of the rule's post-closure care program, and to the extent corrective measures are required, Duke Energy will take the necessary actions.